Lakeview Subdivision (PWS ID2180020)
SOURCE WATER ASSESSMENT FINAL REROR T

June 22, 2004

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for Lakeview Subdivision (PWS #2180020), Clearwater County, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This document is an addendum to the report completed February 2003 and will focus specifically on Well #2. The assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighing system construction scores, hydrologic sensitivity scores, and Potential Contaminant/Land Use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other category (ies) results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

Lakeview Subdivision is located north of Asahaka on the East Side of Dworshak Reservoir (see Figure 1). The community water system has four active wells that serves a population of approximately 25 people through 12 connections. Total coliform bacteria have been detected within the distribution system of the Lakeview Subdivision water system. The detection's sampled from the distribution system were collected in the summer and fall of 2003. Nitrates have been sampled annually the last three-year, Wells #1, #2 and #4 have been zero. Well #3 had nitrate of 0.53 mg/l in 2002 and 0.6 mg/ in 2003. This is significantly below the maximum contaminant level (MCL) set by EPA of 10mg/l. No other contaminant sources have been detected through the routine sampling of the water system.

The final susceptibility ranking for wells #1, #2, and #3 are low for inorganic chemical (IOC, e.g. nitrate), volatile organic chemical (VOC, e.g. petroleum products), synthetic organic chemical (SOC, e.g. pesticides). Microbial contaminants (e.g. bacteria) are rated moderate for all four wells. Well #4 has a final susceptibility rating of low for SOC and moderate for IOC and VOC. (see Table 2). The limited number of potential contaminant sources located with the delineated area gave Lakeview Subdivision the low and moderate rankings for susceptibility to contaminants. A copy of the susceptibility analysis for the Lakeview Subdivision along with a map showing potential contaminant sources are included with this summary. Information regarding the potential contaminants within the delineated areas have been summarized and included in Table 1.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Lakeview Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 50-foot radius circle around the wellhead clear of all potential contaminants. The wellhouse should not be used for storage, especially for pesticide storage. If a spill occurred so close to the well, it could potentially be disastrous for the water system. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated protection area is outside the direct jurisdiction of the Lakeview Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission and Clearwater County Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed drinking water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR LAKEVIEW SUBDIVISION, CLEARWATER COUNTY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments for sources active prior to 1999 were completed by May of 2003. Source Water Assessments (SWAs) for sources activated after 1999 are being developed on a case-by-case basis. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every water system is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to use while developing a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should make the decision as to the amount and types of information necessary to develop a drinking water protection program. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

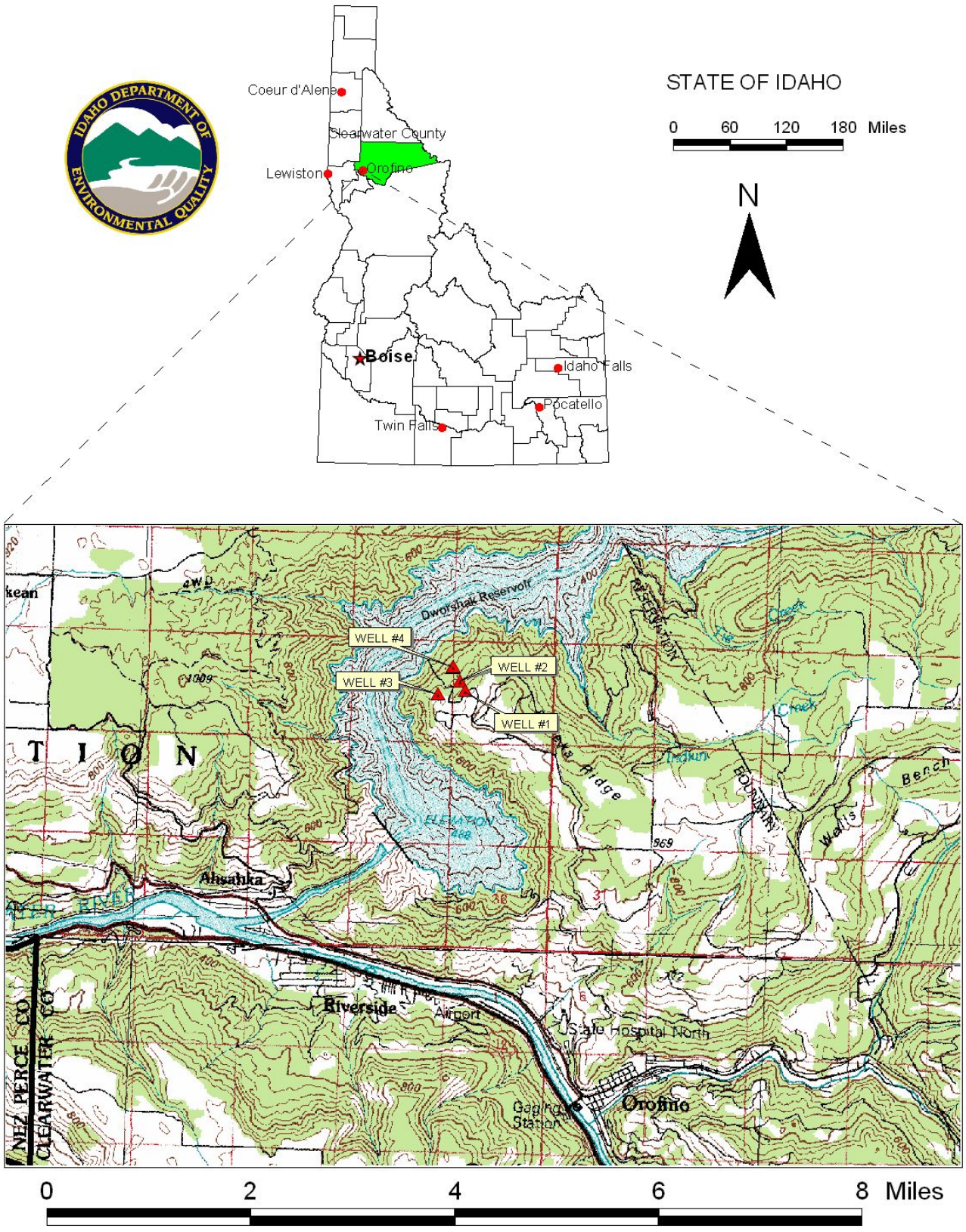
The Lakeview Subdivision is located north of Ahsahka, on the East Side of Dworshak Reservoir (see Figure 1). The community water system has four active wells that serve a population of approximately 25 people through 12 connections.

Water chemistry tests at the wellheads have shown no significant problems. Water chemistry tests are routinely conducted on the Lakeview Subdivision drinking water system. Total coliform bacteria have been detected within the distribution system of the Lakeview Subdivision water system. The detected samples from the distribution system were collected in the summer and fall of 2003. Nitrate concentrations have been measured annually for the last three-years. Results from Wells #1, #2 and #4 have been zero. Well #3 had nitrate concentrations of 0.53 mg/l in 2002 and 0.6 mg/ in 2003. This is significantly below the maximum contaminant level (MCL) set by EPA of 10 mg/l. No other contaminant sources have been detected through the routine sampling of the water system.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into TOT zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used the WHAEM 2000 model in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water in the vicinity of Lakeview Subdivision wells. The computer model used site specific data, including the previous source water assessment work as well hydrologic reports (detailed below) to develop the capture zone. The delineated source water assessment area for the Lakeview Subdivision can best be described as a circular shaped zone that extends away from the the source wells approximately one mile. The actual data used by DEQ in determining the source water assessment delineation area are available upon request.

FIGURE 1 Site Vicinity Map of Lakeview Subdivision



Hydrogeology

Lakeview Subdivision is located approximately seven (7) miles northwest of the town of Orofino, Idaho, as seen in figure 1. The subdivision lies on Eureka Ridge, a relatively flat bench of basalt flows underlain by granitic and metamorphic rocks. The ridge is bound by Dworshak Reservoir to the southwest, west, northwest, and north sides. The elevation of the ridge varies from 2,220 to 2,800 feet above sea level (fasl).

The geologic information presented in this report is based on a consultant report conducted in the area (Ralston, 2001). The geology of the ridge consists of basalt and interbedded sedimentary units overlying a basement complex of metamorphic and granitic rocks. The basalt flows and associated interbeds are approximately 400 feet thick, based on the well log information. Thickness of these flows may increase to the southeast, but data is not available to support this suggestion. The basement rocks are composed primarily of metamorphic rocks, with granitic rock intrusions found locally. The metamorphic rocks that compose the basement complex are generally schist, gneiss, and quartzite. These rocks are dipping 50 to 65 degrees to the northeast, with a strike to the northwest (Ralston, 2001). Geologic mapping of the area is currently underway; thus a detailed description of the geology is unavailable at this time.

More locally, a large landslide block was identified on the northwest portion of the ridge. This landslide extends from the basalt/basement rock contact down to the reservoir. The upper portion of the landslide contains several small ponds. Basalt fragments can be seen in the rubble from the top of the block down to the shoreline. Based on well log information, this block is approximately 150 feet thick.

The ground water of the ridge is located in perched aquifers in the basalt flows and their associated interbeds as well as the basement complex. Water levels in the wells completed in this area have been historically dropping since the time of the construction of the wells. These perched aquifers are isolated from the regional aquifer and generally produce low yields (<15 gpm). In order for a well in this subdivision to be developed in the regional aquifer, the well must penetrate below the level of the reservoir. The full pool stage of the reservoir lies at 1600 fasl, which would require a well depth of at least 600 feet.

Wells #1, #2, and #3 are located on top of the bench near the basement rock/basalt contact. Well #4 is located within the mapped landslide block. The Hayes well, a well used as a test point, is also located within the landslide block. Well #4 generally has higher yields than the other three wells coupled with a lower rate of decline in water levels. In addition, the water level in well #4 does not correlate with the other three wells, suggesting this well is drawing from a separate perched aquifer than the other three wells.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area and the surrounding area of the Lakeview Subdivision source is predominantly woodland.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during April 2004. The inventory involved identifying and documenting potential contaminant sources within the Lakeview Subdivision Source Water Assessment Area through the use of computer databases and Geographic Information System maps developed by DEQ. An enhanced contaminant inventory was conducted in April 2004 in which the system operator was allowed to review the potential contaminant inventory conducted by DEQ. No additional sources were identified by the operator

No potential contaminant sites are located within the delineated source water area. The delineation does not encounter any contaminant priority areas and the countywide chemical usage rated low. The dominant land use within the delineated area is undeveloped woodland. Due to the limited number of potential contaminant sources, roads within the subdivision and on-site septic systems are the only contaminant sources identified with Ground Water Under Direct Influence (GWUDI) maps (Table 1).

Table 1. Lakeview Subdivision, Potential Contaminant Inventory and Land Use

Description of Source	TOT[1] Zone	Source of Information	Potential Contaminants[2]
Roads	0-10 Year	GIS Map	VOC, SOC
On site Septic	0-3 Year	GWUDI map	IOC, Microbial

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

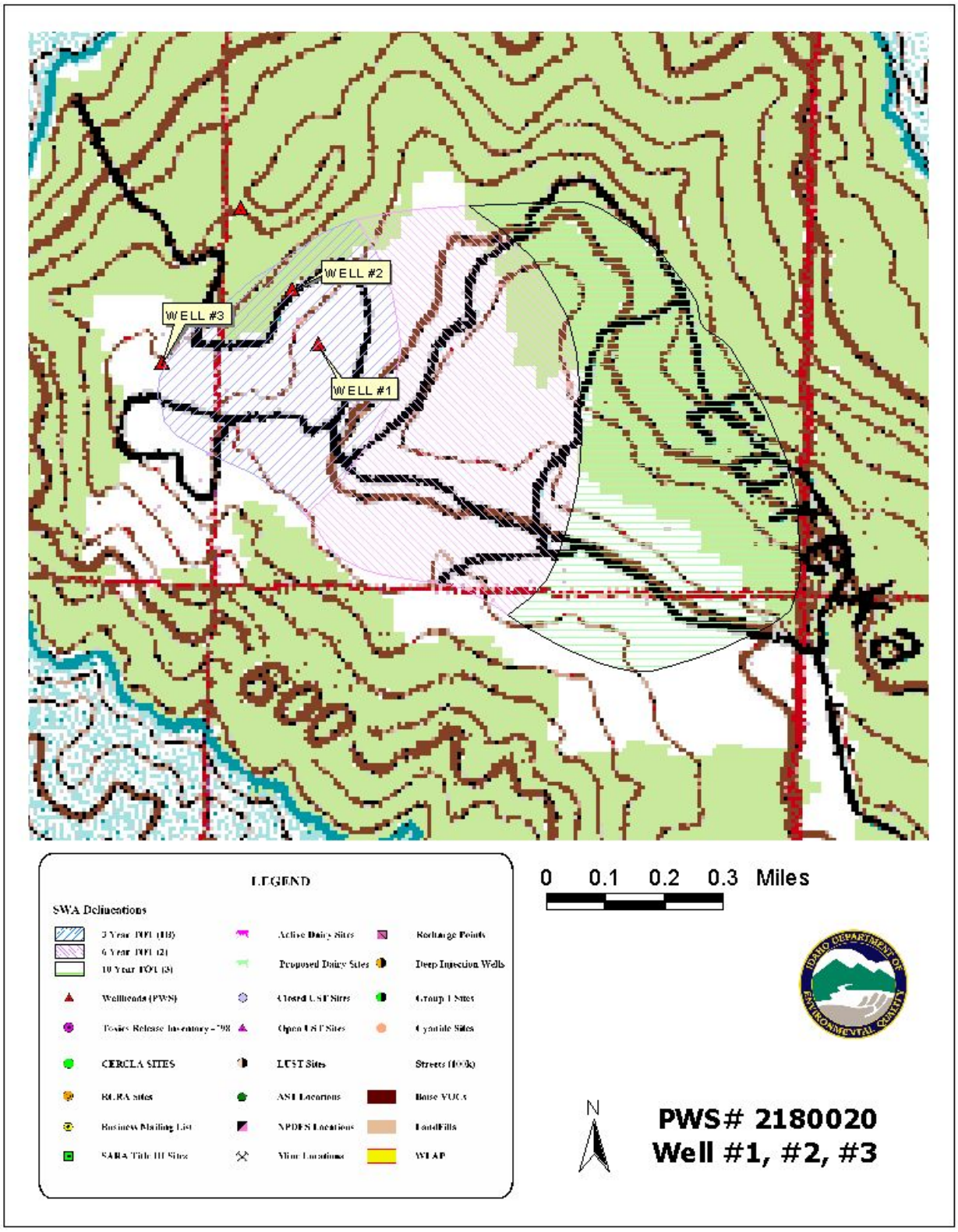


Figure 2. Lakeview Subdivision Wells #1, #2, #3 Delineation Map and Potential Contaminant Source Locations

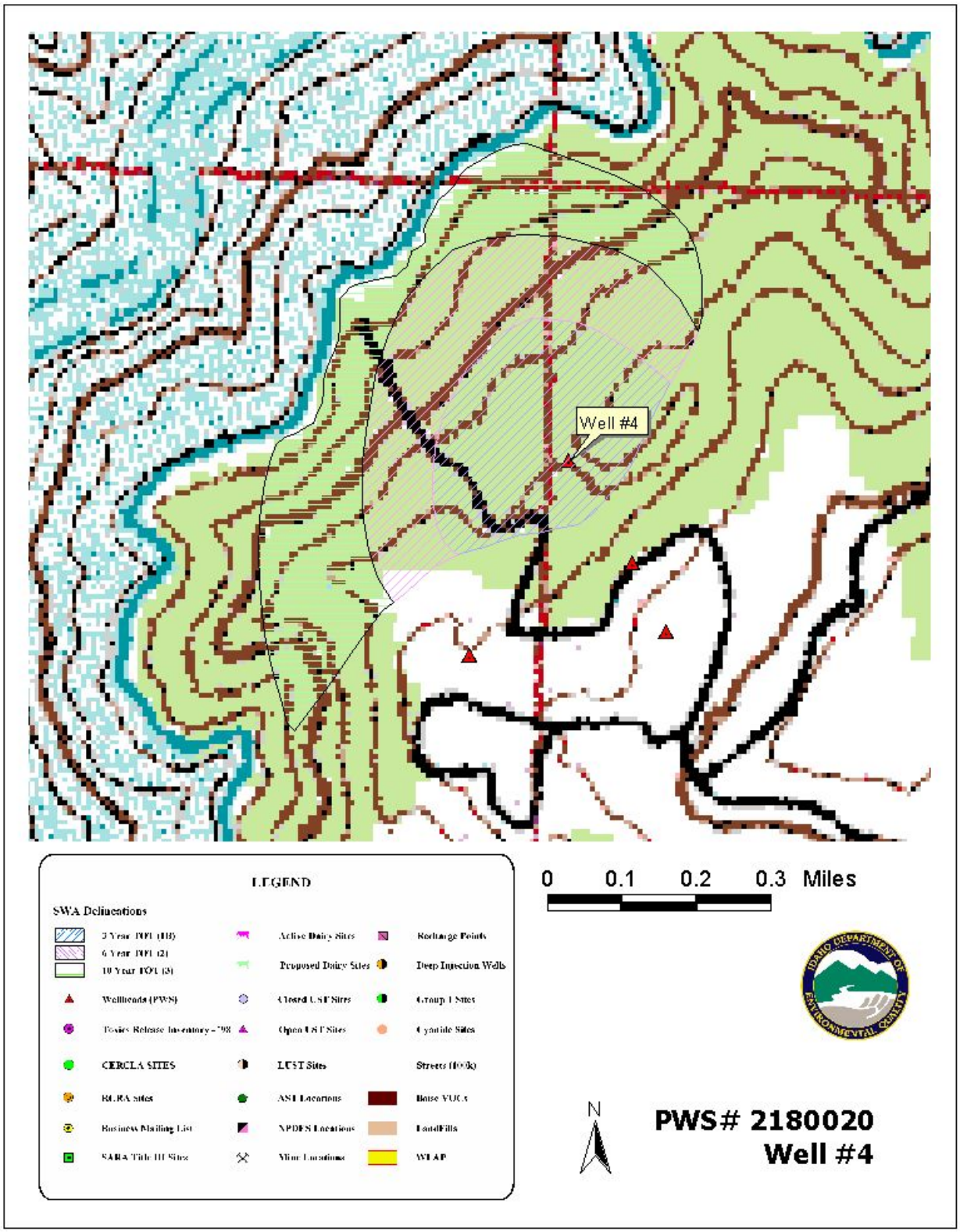


Figure 3. Lakeview Subdivision Well #4 Delineation Map and Potential Contaminant Source Locations

Section 3. Susceptibility Analyses

Each wells susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well or spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheet for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity rated moderate for all four wells. Soils surrounding the wells are considered moderately- to well drained by the Natural Resource Conservation Service (NRCS). The composition of the vadose zone is primarily basalts and clay layers. Well #1 static water level is at 150 feet bgs, and the well is completed to a depth of 400 feet below ground surface (bgs) into granite. Well #2 static water is listed on the well log at 264 feet bgs, however Dale Ralston's report suggest that this is inaccurate, the true water level is at 164 feet bgs. This would be more in line with the water levels of the nearby wells. Well #3 is completed to a depth of 365 feet into cortz granite; the static water level is 145 feet bgs. Well #4 was drilled to a depth of 500 feet bgs into hard granite; the hole was back filled to 180 feet bgs. Static water level of well #4 is 80 feet bgs. An aquitard is present above the producing zone of all four wells.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 2001 for the system.

The Lakeview Subdivision drinking water system consists of four wells that extracts ground water for domestic uses. Well #1 has a total depth of about 400 feet bgs and was cased to a depth of 270 feet with 6-inch diameter steel casing into basalt. A four-inch diameter PVC casing is from 360 to 400 feet bgs; the casing is perforated from 360 to 390 feet. The surface seal in the well, composed of pudding clay, was completed to a depth of 20 feet into "clay." The well was deepened in 1995 to 445 feet bgs but the bottom portion caved back in to 400 feet (Ralston 2001).

Lakeview Well #2 was drilled to a depth of 417 feet bgs in 1983. A 6-inch diameter casing is installed from ground surface to 408 feet bgs, set into granite. The casing is perforated from 295 to 310 feet and 390 to 405 feet. The surface seal is composed of bentonite and completed to 18 feet bgs into basalt.

Well #3 was drilled in 1995 to a depth of 365 feet bgs. An 8-inch diameter casing is installed from ground surface to 50 feet bgs into "clay granite". A 6-inch PVC casing is set from ground surface to 365 feet bgs, with perforation over it entire length. The surface seal is set to 50 feet bgs with bentonite, into "clay granite".

Well #4 drilled in 2000 to a depth of 500 feet bgs. The well is back filled to 180 feet bgs. Six-inch diameter steel casing is set from two feet above ground surface to 138 feet bgs into (Ralston 2001). The well log indicates that the casing is set into "silty sandy clay". Perforations in the casing occur between 75 and 90 feet bgs. This well is the highest producer for the system with a reported yield of 70 gpm. A bentonite surface seal is set from ground surface to 31 feet bgs.

The well system construction score was low for all four wells. The depth of the wells and the presence of surface seal contributed to the low ratings. Lakeview Subdivision wells reside outside of the 100 year flood plain. The 2001 Sanitary survey listed no significant deficiencies for the system.

Potential Contaminant Source and Land Use

Lakeview Subdivision wells rate low for IOC, VOC, SOC, and microbial contaminates. The limited number of potential contaminant sources significantly contributed to this score. Wells #1, #2, #3 share the same delineation and are closely related in geology and production capacity. Dworshak Reservoir confines well #4 in its delineation.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically gives a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the Lakeview Subdivision wells rated low or moderate susceptibility to all potential contaminant categories (Table 2), predominantly due to the moderate hydrologic sensitivity and the lack of potential contaminant sources located within the delineated area.

Table 2. Summary of Lakeview Subdivision Susceptibility Evaluation

	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory[2]				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbial		IOC	VOC	SOC	Microbial
Well #1	M	L	L	L	L	L	L	L	L	M
Well #2	M	L	L	L	L	L	L	L	L	M
Well #3	M	L	L	L	L	L	L	L	L	M
Well #4	M	L	L	L	L	L	L	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The final susceptibility ranking for wells #1, #2, and #3 are low for inorganic contaminants (IOC, e.g. nitrate), volatile organic contaminants (VOC, e.g. petroleum products), synthetic organic contaminants (SOC, e.g. pesticides). Microbial contaminants (e.g. bacteria) are rated moderate for all four wells. Well #4 final susceptibility rating is low for SOCs and moderate for IOCs and VOCs. (see Table 2). The limited number of potential contaminant sources located with the delineated area gave Lakeview Subdivision the low and moderate rankings for susceptibility to contaminants.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Lakeview Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 50-foot radius circle around the wellheads clear of all potential contaminants from. If a spill occurred so close to the well, it could potentially be disastrous for the water system. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated protection areas are outside the direct jurisdiction of the Lakeview Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation encompasses urban and commercial land uses. Public education topics could include hazardous waste disposal methods and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

EPA; 2000; WHAEM program documentation.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Department of Environmental Quality, 2001. Sanitary Survey for Lakeview Subdivision.

Idaho Department of Environmental Quality, 2003. Ground Water Under Direct Influence Field Survey for Lakeview Subdivision.

IDAPA 58.01.08, Idaho Rules for Public Drinking Water Systems, Section 004.

Ralston Hydrologic Services Inc., 2001. Ground Water and Well Analysis for the Lakeview Subdivision Located near Orofino, Idaho. Unpublished consultant report prepared for Progressive Engineering Group, Lewiston, ID. 9pp.

Appendix A

Lakeview Subdivision

Susceptibility Analysis Worksheet

Formulas used to determine Susceptibility Analysis Final Scores

Formula for Well Sources

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
≥ 13 High Susceptibility

Ground Water Susceptibility Report	Lakeview Subdivision	Public Water System Number: ID2180020	Well #1	5/26/2004

1. System Construction		Score	
Drill Date	1978		
Driller Log Available	Yes		
Sanitary Survey (if yes, indicate date of last survey)	2001		
Well meets IDWR construction standards	No	1	
Wellhead and surface seal maintained	Yes	0	
Casing and annular seal extend to low permeability unit	Yes	0	
Highest production 100 feet below static water level	Yes	0	
Well located outside the 100 year flood	Yes	0	
Total System Construction Score		1	Low

2. Hydrologic Sensitivity			
Soils are poorly to moderately drained	No	2	
Vadose zone composed of gravel, fractured rock or unknown	No	0	
Depth to first water > 300 feet	No	1	
Aquitard present with > 50 feet cumulative thickness	Yes	0	
Total Hydrologic Score		3	Moderate

3. Potential Contaminate/Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Zone 1A					
Land Use Zone 1A	Woodland				
Farm Chemical use	Low				
IOC, VOC, SOC or Microbial sources in zone 1A	No				
Total Potential Contaminate Source/Land Use Score		0	0	0	0
Zone 1B					
Contaminant sources present (Number of Sources)		2	1	1	2
Score = # Contaminant Sources X 2 (8 Points Maximum)		4	2	2	4
Land use Zone I	<25% Ag				
Zone 1B contains or intercepts a Group 1 Area	No				
Sources of Class II or III leacheable contaminants (4 Points Maximum)	0				
Total Potential Contaminate Source/Land Use Score		4	2	2	4
Zone II					
Contaminant sources present	Yes	1	1	1	0
Land use Zone II	<25% Ag				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Zone III					
Contaminant sources present	Yes	0	1	1	0
Is there Agricultural Land use that occupy >50% of zone	No				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Cumulative Potential Contaminant/Land Use Score		5	4	4	4
		Low	Low	Low	Low
4. Final Susceptibility Use Score		5	5	5	6
5. Final Well Ranking		Low	Low	Low	Moderate

Ground Water Susceptibility Report	Lakeview Subdivision	Public Water System Number: ID2180020	Well #2	5/26/2004

1. System Construction		Score	
Drill Date	1978		
Driller Log Available	Yes		
Sanitary Survey (if yes, indicate date of last survey)	2001		
Well meets IDWR construction standards	No	1	
Wellhead and surface seal maintained	Yes	0	
Casing and annular seal extend to low permeability unit	Yes	0	
Highest production 100 feet below static water level	Yes	0	
Well located outside the 100 year flood	Yes	0	
Total System Construction Score		1	Low

2. Hydrologic Sensitivity			
Soils are poorly to moderately drained	No	2	
Vadose zone composed of gravel, fractured rock or unknown	No	0	
Depth to first water > 300 feet	No	1	
Aquitard present with > 50 feet cumulative thickness	Yes	0	
Total Hydrologic Score		3	Moderate

3. Potential Contaminate/Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Zone 1A					
Land Use Zone 1A	Woodland				
Farm Chemical use	Low				
IOC, VOC, SOC or Microbial sources in zone 1A	No				
Total Potential Contaminate Source/Land Use Score		0	0	0	0
Zone 1B					
Contaminant sources present (Number of Sources)		2	1	1	2
Score = # Contaminant Sources X 2 (8 Points Maximum)		4	2	2	4
Land use Zone I	<25% Ag				
Zone 1B contains or intercepts a Group 1 Area	No				
Sources of Class II or III leacheable contaminants (4 Points Maximum)	0				
Total Potential Contaminate Source/Land Use Score		4	2	2	4
Zone II					
Contaminant sources present	Yes	1	1	1	0
Land use Zone II	<25% Ag				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Zone III					
Contaminant sources present	Yes	0	1	1	0
Is there Agricultural Land use that occupy >50% of zone	No				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Cumulative Potential Contaminant/Land Use Score		5	4	4	4
		Low	Low	Low	Low
4. Final Susceptibility Use Score		5	5	5	6
5. Final Well Ranking		Low	Low	Low	Moderate

Ground Water Susceptibility Report	Lakeview Subdivision	Public Water System Number: ID2180020	Well #3	5/26/2004

1. System Construction		Score	
Drill Date	1995		
Driller Log Available	Yes		
Sanitary Survey (if yes, indicate date of last survey)	2001		
Well meets IDWR construction standards	Yes	0	
Wellhead and surface seal maintained	Yes	0	
Casing and annular seal extend to low permeability unit	Yes	0	
Highest production 100 feet below static water level	Yes	0	
Well located outside the 100 year flood	Yes	0	
Total System Construction Score		0	Low

2. Hydrologic Sensitivity			
Soils are poorly to moderately drained	No	2	
Vadose zone composed of gravel, fractured rock or unknown	No	0	
Depth to first water > 300 feet	No	1	
Aquitard present with > 50 feet cumulative thickness	Yes	0	
Total Hydrologic Score		3	Moderate

3. Potential Contaminate/Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Zone 1A					
Land Use Zone 1A	Woodland				
Farm Chemical use	Low				
IOC, VOC, SOC or Microbial sources in zone 1A	No				
Total Potential Contaminate Source/Land Use Score		0	0	0	0
Zone 1B					
Contaminant sources present (Number of Sources)		2	1	1	2
Score = # Contaminant Sources X 2 (8 Points Maximum)		4	2	2	4
Land use Zone I	<25% Ag				
Zone 1B contains or intercepts a Group 1 Area	No				
Sources of Class II or III leacheable contaminants (4 Points Maximum)	0				
Total Potential Contaminate Source/Land Use Score		4	2	2	4
Zone II					
Contaminant sources present	Yes	1	1	1	0
Land use Zone II	<25% Ag				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Zone III					
Contaminant sources present	Yes	0	1	1	0
Is there Agricultural Land use that occupy >50% of zone	No				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		1	1	1	0
Cumulative Potential Contaminant/Land Use Score		5	4	4	4
		Low	Low	Low	Low
4. Final Susceptibility Use Score		5	5	5	6
5. Final Well Ranking		Low	Low	Low	Moderate

Ground Water Susceptibility Report	Lakeview Subdivision	Public Water System Number: ID2180020	Well #4	5/26/2004

1. System Construction		Score	
Drill Date	2000		
Driller Log Available	Yes		
Sanitary Survey (if yes, indicate date of last survey)	2001		
Well meets IDWR construction standards	Yes	0	
Wellhead and surface seal maintained	Yes	0	
Casing and annular seal extend to low permeability unit	Yes	0	
Highest production 100 feet below static water level	No	1	
Well located outside the 100 year flood	Yes	0	
Total System Construction Score		1	Low

2. Hydrologic Sensitivity			
Soils are poorly to moderately drained	No	2	
Vadose zone composed of gravel, fractured rock or unknown	No	0	
Depth to first water > 300 feet	No	1	
Aquitard present with > 50 feet cumulative thickness	Yes	0	
Total Hydrologic Score		3	Moderate

3. Potential Contaminate/Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Zone 1A					
Land Use Zone 1A	Woodland				
Farm Chemical use	Low				
IOC, VOC, SOC or Microbial sources in zone 1A	No				
Total Potential Contaminate Source/Land Use Score		0	0	0	0
Zone 1B					
Contaminant sources present (Number of Sources)			1	1	
Score = # Contaminant Sources X 2 (8 Points Maximum)			2	2	
Land use Zone I	<25% Ag				
Zone 1B contains or intercepts a Group 1 Area	No				
Sources of Class II or III leacheable contaminants (4 Points Maximum)	0				
Total Potential Contaminate Source/Land Use Score		0	2	2	0
Zone II					
Contaminant sources present	Yes		2	2	0
Land use Zone II	<25% Ag				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		0	2	2	0
Zone III					
Contaminant sources present	Yes	0	1	1	0
Is there Agricultural Land use that occupy >50% of zone	No				
Sources of Class II or III leacheable contaminants	No				
Total Potential Contaminate Source/Land Use Score		0	1	1	0
Cumulative Potential Contaminant/Land Use Score		0	6	6	0
		Low	Low	Low	Low
4. Final Susceptibility Use Score		4	5	5	4
5. Final Well Ranking		Low	Moderate	Moderate	Moderate